TABLE 5

	RTR	PBS	Statistics
	tetramer		(Chi-square)
NUMBER OF EYES	16	1 6	
ULCER DEPTH			
No Ulcer	9	2	
Anterior	4	6	
Middle	0	3	
Posterior	2	4	
Descemetocele	1	1	
Perforation	0	0	
TOTAL ULCERS	·		
During expt	7 (43.8%)	14 (87.5%)	p=0.0046,
			very
			significant
			(RTR vs PBS)
End of expt	6 (37.5%)	12 (75%)	p=0.0163,
(day 42)			significant
			(RTR vs PBS)

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Discussion

Alkali-injury to the eye degrades many proteins in all layers of the cornea by hydrolysis of peptide bonds and destruction acids.17 of certain amino This degradation of cellular directly releases two neutrophilic extracellular corneal proteins tripeptide chemoattractants.5 Subsequent in vitro experiments identified these chemoattractants as N-acetyl-PGP and N-methyl-PGP chemotactic properties.4 and confirmed their The acetylated tripeptide was the one more active. Intrastromal injection of N-acetyl-PGP synthetic or the ultrafiltered tripeptide chemoattractants into normal cornea demonstrated heavy neutrophil invasion to the injection site.6 Taken together these findings substantiated the role of this tripeptide chemoattractant in triggering the early neutrophil response in the alkali-injured eye, confirming its importance as an inflammatory mediator.

Using the molecular recognition theory, RTR complementary peptides were designed and synthesized that were found to be inhibitors of N-acetyl-PGP. The capacity of these complementary peptides to inhibit polymorphonuclear leukocyte

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The most potent polarization varied with the chemoattractant. complementary peptide, RTR tetramer, showed greater inhibitory potency for synthetic N-acetyl-PGP compared to the ultrafiltered tripeptide chemoattractants. This might be the result of non-specific interaction with the heterogeneous group of small peptides (100-1,000 MWt) known to be present in the latter sample. The additional complementary peptides did not inhibit fact that these LTB₄ activated polarization demonstrates that they are not directly acting on the neutrophil in a non-specific manner. The absence of LTB₄ inhibition and the scarcity of extracellular LDH release from all incubations confirms that RTR complementary peptides were not toxic to neutrophils. Finally, these results also indicate that N-acetyl-PGP binds to a different neutrophil receptor than LTB₄.

The molecular recognition theory (or complementary peptides) posits that the pattern of hydropathy of amino acids is a gross determinant of shape and rudimentary function of that peptide or protein. Therefore, inverting this hydropathic pattern should result in a peptide with a complementary shape, since the same driving forces are involved, but in reverse orientation. Hence it is